NASA-CR-198871

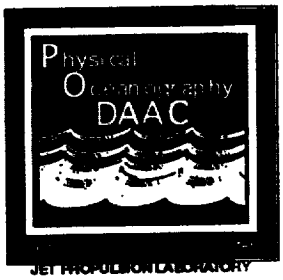


JPL Publication 90-49, Rev. 5

# JPL Physical Oceanography Distributed Active Archive Center (PO.DAAC) Data Availability

## Version 1-94

## User Services Office




February 21, 1994

National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

JPL Publication 90-49, Rev. 5

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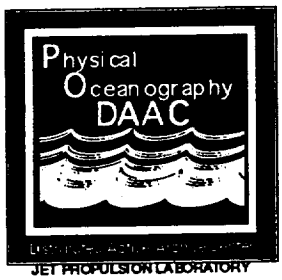


February 21, 1994

NASA
National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

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## ABSTRACT

The Physical Oceanography Distributed Active Archive Center (PO.DAAC) archive at the Jet Propulsion Laboratory (JPL) contains satellite data sets and ancillary *in-situ* data for the ocean sciences and global-change research to facilitate multidisciplinary use of satellite ocean data. Geophysical parameters available from the archive include sea-surface height, surface-wind vector, surface-wind speed, surface-wind stress vector, sea-surface temperature, atmospheric liquid water, integrated water vapor, phytoplankton pigment concentration, heat flux, and *in-situ* data. PO.DAAC is an element of the Earth Observing System Data and Information System (EOSDIS) and is the United States distribution site for TOPEX/POSEIDON data and metadata.

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# I. INTRODUCTION

## The Role of the Physical Oceanography Distributed Active Archive Center

This publication contains descriptions of the data in the archive of the Physical Oceanography Distributed Active Archive Center (PO.DAAC) at the Jet Propulsion Laboratory (JPL), California Institute of Technology, Pasadena, California.

As one element of the Earth Observing System Data and Information System (EOSDIS), the mission of the PO.DAAC is to archive and distribute data relevant to the physical state of the oceans (see Table 1). The goals of the PO.DAAC are to serve the needs of the oceanographic and geophysical sciences research communities and to provide data in support of interdisciplinary research. The primary means of achieving these goals are through: acquiring, compiling, processing, and distributing data obtained from spaceborne and conventional instruments; producing and distributing higher level data products; and providing an increasing range of data services to the broad research community.

This document revision contains data sets in addition to those reported previously. As new data are added to the PO.DAAC holdings, the PO.DAAC.DATA bulletin board on the OMNET Electronic Mail Service will be updated. The PO.DAAC data holdings are also described in the National Aeronautics and Space Administration (NASA) Global Change Master Directory (GCMD), an on-line directory of data maintained by NASA's Goddard Space Flight Center.

## JPL Physical Oceanography DAAC (PO.DAAC) Data Distribution Policy

To facilitate the full and open access to quality data for global-change research, the data archived by the PO.DAAC will be freely available upon request to the scientific community, to educators and to the community at large. Data sets listed in this catalog do not carry periods of exclusive use or access. The cost of reproduction and distribution for all data sets included in the PO.DAAC inventory will be borne by the PO.DAAC as a service to the community.

The use of the data sets provided by the PO.DAAC implies an obligation that proper credit be given to the data source, including the author of the data set. Should the data obtained from the PO.DAAC be used in a publication, the PO.DAAC requests the following acknowledgment: "These data were obtained from the NASA Physical Oceanography Distributed Active Archive Center at the Jet Propulsion Laboratory, California Institute of Technology." Investigators are asked to send the PO.DAAC two reprints of all published papers or reports that utilize these data.

To assist the PO.DAAC in providing the best service to the scientific community, we request notification if you transmit these data to other researchers.

The PO.DAAC wishes to foster data sharing whenever possible. If you have data sets or software you would like to share with other members of the research community, the PO.DAAC will be happy to manage and distribute these products for you.

## Data Media and Formats

The PO.DAAC distributes data on a variety of media and in a variety of formats, as listed in Table 2. The PO.DAAC supports data distribution by electronic file transfer (FTP) where practical, and data available in the PO.DAAC public account can be accessed electronically via Internet. The PO.DAAC will be increasing the number of data sets that are available via FTP. Currently data listed in Table 2 as available via FTP is either staged for immediate access or can be staged upon request.

Procedures for downloading PO.DAAC data over Internet are presented below:

1. Log on to a host at your site that is connected to Internet and is running software that supports the FTP command. If you have questions about step 1, contact your system operator for assistance.
2. Invoke FTP on most systems by entering the Internet address % FTP PODAAC.JPL.NASA.GOV.
3. Log in by entering **user** at the prompt.
4. When prompted for foreign user name, enter **anonymous.**
5. When prompted for password, enter your user name, e.g. ssd@somewhere.town.edu (this is for our record-keeping purposes).
6. Enter **dir** to get a directory listing.
7. By entering a **cd** command, move to the directory that contains the files of interest to you.
8. Files are transferred by entering **get "filename "**. (Reminder: files need to be transferred in binary by entering **"binary"** at the prompt.)
9. If more than one file is needed, enter **mget** and specify the filename with wildcards.
10. To exit from PODAAC.JPL.NASA.GOV, enter **exit.**

Selected data sets are distributed on CD-ROM media as indicated in Table 2. The PO.DAAC supports data distribution on magnetic media, including 6250-bpi 9-track tape, 8-mm tape, and 3480 cartridge tape. In general, data will be supplied in VAX VMS backup, ANSI, or UNIX (unlabeled tape) format as requested. UNIX TAR tapes are available as time permits.

EOSDIS has adopted the hierarchical data format (HDF) as the data format standard. Where practical, the PO.DAAC will endeavor to distribute the data sets in HDF. For data provided in HDF, the read and display software and documentation are available from the National Consortium for Supercomputer Applications (softdev@ncsa.uiuc.edu).

Read and display software is available for most data sets and will be provided with documentation of the data. Documentation relevant to a data set not readily available in the open literature will be sent with the data.

**Data Requests and Information**

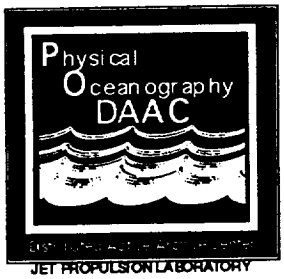
Requests for data may be made by completing and mailing the User Request Form on the following page or by sending the same information electronically to podaac@podaac.jpl.nasa.gov on Internet or PO.DAAC.JPL on OMNET. It is requested that users supply precise information as to computer type and requested data format to facilitate timely and appropriate data transfer from the PO.DAAC.

For information on order status and general information regarding PO.DAAC data holdings and services, contact:

User Services Office
Physical Oceanography Distributed Active Archive Center (PO.DAAC)
Jet Propulsion Laboratory
MS 300-320, 4800 Oak Grove Drive
Pasadena, CA 91109, U.S.A.
Phone: (818) 354-9890 or 354-0906
FAX: (818) 393-2718
OMNET: PO.DAAC.JPL
Internet: podaac@podaac.jpl.nasa.gov

For technical information regarding data sets, data usage, and data formats, contact, at JPL:

Susan Digby Head, User Services
Phone: (818) 354-0151
FAX: (818) 393-6720 (Attention: Susan Digby)
Internet: ssd@podaac.jpl.nasa.gov, OMNET:PO.DAAC.JPL




**Physical Oceanography**
**Distributed Active Archive Center**

USER REQUEST FORM

Name _____ Date _____

Institution _____

Department _____

Building _____

Street _____

City _____ State /Country _____ Zip Code _____

Phone ( ) _____ FAX ( ) _____

E-mail _____

DATA REQUEST

Number and Title of data set (from this publication) _____

_____

Region _____

Time period _____

Computer type _____

Preferred media (see product options*) _____

Preferred data format (see product options*) _____

Other information _____

* Product options are found with listings for each product and in table 2.

Please be specific, your order can only be filled promptly if we have all the information.
(See reverse for contact information)

V. 1-94

The return address for this form is:

User Services Office
Physical Oceanography Distributed Active Archive Center (PO.DAAC)
Jet Propulsion Laboratory
M/S 300-320,
4800 Oak Grove Drive
Pasadena, CA 91109, U.S.A.

OMNET: PO.DAAC.JPL
Internet: podaac@podaac.jpl.nasa.gov
Phone: (818) 354-9890 or 354-0906
FAX: (818) 393-2718

Orders can also be placed electronically by providing the pertinent information .

For information on the status of data orders and general information regarding PO.DAAC data holdings and data services, please contact the User Services Office at the return address for this form .

For technical information regarding data sets, data usage, and data formats, contact Susan Digby at the JPL Physical Oceanography DAAC address listed above or on Internet at ssd@podaac.jpl.nasa.gov, or on OMNET at PO.DAAC.JPL.

**JPL Physical Oceanography DAAC (PO.DAAC) Data Distribution Policy**

To facilitate the full and open access to quality data for global-change research, the data archived by the PO.DAAC will be freely available upon request to the scientific community, to educators and to the community at large. Data sets listed in this catalog do not carry periods of exclusive use or access. The cost of reproduction and distribution for all data sets included in the PO.DAAC inventory will be borne by the PO.DAAC as a service to the community.

The use of the data sets provided by the PO.DAAC implies an obligation that proper credit be given to the data source, including the author of the data set. Should the data obtained from the PO.DAAC be used in a publication, the PO.DAAC requests the following acknowledgment: "These data were obtained from the NASA Physical Oceanography Distributed Active Archive Center at the Jet Propulsion Laboratory, California Institute of Technology." Investigators are asked to send the PO.DAAC two reprints of all published papers or reports that utilize these data.

To assist the PO.DAAC in providing the best service to the scientific community, we request notification if you transmit these data to other researchers.

The PO.DAAC wishes to foster data sharing whenever possible. If you have data sets or software you would like to share with other members of the research community, the PO.DAAC will be happy to manage and distribute these products for you.

(back of order request form V. 1-94)

## II. SUMMARY OF PO.DAAC DATA

The following two tables provide a listing of the data within the PO.DAAC. Software available from PO.DAAC is listed in Section IV.

Table 1 provides a listing of the data within PO.DAAC, together with the geophysical parameter(s) available from the data. Section III provides further details for each data set.

Table 2 provides information on the media and format of the standard products. It should be emphasized that should you require data in a media or format that has not been indicated for a given product, in most cases your request can be custom-produced as time permits. This is particularly true for data that is available via FTP. Please check Section III for further details on the data set of interest.

Table 1. PO.DAAC Data Sets and Geophysical Parameters.

| # | PO.DAAC DATA SETS | Sea-Surface Height | Surface-Wind Vector (and Sigma-Naught) | Surface-Wind Speed | Surface-Wind Stress Vector | Integrated Water Vapor | Atmospheric Liquid Water | Sea-Surface Temperature | Sea-Ice Extent and Concentration | Heat Flux | In-Situ Data | Phytoplankton Pigment Concentration |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | AVHRR monthly global MCSST coregistered with CZCS data (Miami, GSFC) CD-ROM | | | | | | | X | | | | X |
| 38 | AVHRR weekly global and regional 18km gridded daytime MCSST (Miami) | | | | | | | X | | | | |
| 37 | AVHRR weekly global and regional 18km nighttime MCSST (Miami) | | | | | | | X | | | | |
| 33 | DMSP F-8 SSM/I ocean wind speed, liquid water, water vapor '87-'91 (Wentz) | | | X | | X | X | | | | | |
| 34 | DMSP F-10 SSM/I ocean wind speed, liquid water, water vapor '90-'92 (Wentz) | | | X | | X | X | | | | | |
| 11 | Geos-3 altimeter geophysical data record '75-'78 | X | | X | | | | | | | | |
| 12 | Geosat altimeter geophysical parameters colocated with NDBC buoy data (Glazman) | X | X | X | | | | | | | X | |
| 1 | Geosat sea-surface height, SSM/I wind speed, AVHRR SST '87 '89 '90 '91 (Halpern) | X | | X | | | | X | | | X | |
| 30 | Nimbus-7 SMMR global 60km gridded ocean parameters '79-'84 (Wentz) | | | X | | X | X | | | | | |
| 14 | SMMR, GOES-W VISSR Tropical Pacific surface thermal forcing parameters (Liu) | | | | | | | | | X | | |
| 9 | SSM/I global gridded water vapor corrections for Geosat altimeter data (Emery) | | | | | X | | | | | | |
| 4 | SSM/I global heat flu., wind stress vectors from ECMWF assimilation (Atlas) | | | | X | | | | | X | | |
| 3 | SSM/I gridded 5-day and monthly averaged surface wind vectors (Atlas) | | X | | | | | | | | X | |

Table 1. (cont.) PO.DAAC Data Sets and Geophysical Parameters.

| # | PO.DAAC DATA SETS | Sea-Surface Height | Surface-Wind Vector (and Sigma-Naught) | Surface-Wind Speed | Surface-Wind Stress Vector | Integrated Water Vapor | Atmospheric Liquid Water | Sea-Surface Temperature | Sea-Ice Extent and Concentration | Heat Flux | In-Situ Data | Phytoplankton Pigment Concentration |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | GEOPHYSICAL PARAMETERS | | | | | | | | | | | |
| 5 | SSM/I surface-wind vectors at SSM/I locations and as gridded analysis (Atlas) | | X | | | | | | | | X | |
| 32 | SSM/I wind speed, water vapor, cloud water at Geosat altimeter locations (Wentz) | | | X | | X | X | | | | | |
| 7 | Seasat SMMR polar gridded brightness temperature statistics (Carsey, Pihos) | | | | | | | | X | | | |
| 19 | Seasat altimeter geophysical data record level 2 '78 | X | | X | | | | | | | | |
| 17 | Seasat altimeter sensor data record level 1a '78 | X | | X | | | | | | | | |
| 18 | Seasat altimeter sensor data record level 1b '78 | X | | X | | | | | | | | |
| 24 | Seasat scanning multichannel microwave radiometer geophysical data record, level 2 | | | X | | X | X | X | X | | | |
| 25 | Seasat scanning multichannel microwave radiometer sensor data record level 1a | | | X | | X | X | X | X | | | |
| 23 | Seasat scanning multichannel microwave radiometer sensor data record level 1b | | | X | | X | X | X | X | | | |
| 21 | Seasat scatterometer geophysical data record level 1b '78 | | X | X | X | | | | | | | |
| 22 | Seasat scatterometer geophysical data record level 2 '78 | | X | X | X | | | | | | | |
| 31 | Seasat scatterometer global 50km sigma-0 data '78 (Wentz) | | X | | | | | | | | | |
| 29 | Seasat scatterometer global dealiased wind vectors '78 (Wentz et al.) | | X | | | | | | | | | |
| 2 | Seasat scatterometer global gridded dealiased surface wind vectors (Atlas) | | X | | | | | | | | | |
| 13 | Seasat scatterometer global gridded dealiased wind vectors (JPL-UCLA-AES) | | X | | | | | | | | | |

Table 1. (cont.) PO.DAAC Data Sets and Geophysical Parameters

| # | PO.DAAC DATA SETS / GEOPHYSICAL PARAMETERS | Sea-Surface Height | Surface-Wind Vector (and Sigma-Naught) | Surface-Wind Speed | Surface-Wind Stress Vector | Integrated Water Vapor | Atmospheric Liquid Water | Sea-Surface Temperature | Sea-Ice Extent and Concentration | Heat Flux | In-Situ Data | Phytoplankton Pigment Concentration |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | Seasat scatterometer global gridded monthly surface wind vectors (Chelton) | | X | | X | | | | | | | |
| 6 | Seasat scatterometer polar gridded daily sigma-0 statistics (Carsey, Pihos) | | X | | | | | | X | | | |
| 20 | Seasat scatterometer sensor data record level 1a '78 | | X | X | X | | | | | | | |
| 26 | Seasat visible and infrared radiometer sensor data record '78 | | | | | | | X | | | | |
| 27 | TOGA related satellite and in-situ data CD-ROM '85-'90 | X | X | X | X | X | X | X | X | X | X | |
| 36 | TOPEX altimeter geophysical data record | X | | | | | | | | | | |
| 35 | TOPEX altimeter sensor data record | X | | | | | | | | | | |
| 28 | TOPEX/Poseidon altimeter merged geophysical data record (NASA/PO.DAAC) | X | | X | | | | | | | | |
| 10 | TOVS global gridded water-vapor corrections for Geosat altimeter data (Emery) | | | | | X | | | | | | |

Table 2. Standard Media and Formats for PO.DAAC Data
(Data are available on other media and in other formats on an "as time permits" basis.)

| # | MEDIA AND FORMATS<br>PO.DAAC DATA SETS | FTP | CD-ROM | Tapes | | Tape Formats | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 9-Track Tape (6250 bpi) or 3480 Tape | 8-mm Tape | VMS Backup (VAX and ALpha) | Unlabeled (UNIX Compatible) | ANSI labeled | UNIX TAR |
| 15 | AVHRR monthly global MCSST coregistered with CZCS data (Miami, GSFC) CD-ROM | | X | | | | | | |
| 38 | AVHRR weekly global and regional 18km gridded daytime MCSST (Miami) | (X) | | X | X | X | X | X | only on 8-mm |
| 37 | AVHRR weekly global and regional 18km nighttime MCSST (Miami) | (X) | | X | X | X | X | X | only on 8-mm |
| 33 | DMSP F-8 SSM/I ocean wind speed, liquid water, water vapor '87-'91 (Wentz) | | | X | X | | X | | |
| 34 | DMSP F-10 SSM/I ocean wind speed, liquid water, water vapor '90-'92 (Wentz) | | | X | X | | X | | |
| 11 | Geos-3 altimeter geophysical data record '75-'78 | | | X | X | | X | | |
| 12 | Geosat altimeter geophysical parameters colocated with NDBC buoy data (Glazman) | X | | X | X | X | X | X | |
| 1 | Geosat sea-surface height, SSM/I wind speed, AVHRR SST '87 '89 '90 '91 (Halpern) | X | | X | X | X | X | X | only on 8-mm |
| 30 | Nimbus-7 SMMR global 60km gridded ocean parameters '79-'84 (Wentz) | X | | X | X | X | X | X | only on 8-mm |
| 14 | SMMR, GOES-W VISSR Tropical Pacific surface thermal forcing parameters (Liu) | X | | X | X | X | X | X | only on 8-mm |
| 9 | SSM/I global gridded water vapor corrections for Geosat altimeter data (Emery) | | | X | X | | X | | |
| 4 | SSM/I global heat flux, wind stress vectors from ECMWF assimilation (Atlas) | X | | X | X | X | X | X | only on 8-mm |
| 3 | SSM/I gridded 5-day and monthly averaged surface wind vectors (Atlas) | | | X | X | | X | | |

(X) indicates regions only

Table 2. (cont.) Standard Media and Formats for PO.DAAC Data
(Data are available on other media and in other formats on an "as time permits" basis.)

| | MEDIA AND FORMATS | FTP | CD-ROM | Tapes | | Tape Formats | | | |
|---|---|---|---|---|---|---|---|---|---|
| # | PO.DAAC DATA SETS | | | 9-Track Tape (6250 bpi) or 3480 Tape | 8-mm tape | VMS Backup (VAX and ALpha) | Unlabeled (UNIX-Compatible) | ANSI labeled | UNIX TAR |
| 5 | SSM/I surface-wind vectors at SSM/I locations and as gridded analysis (Atlas) | X | | X | X | X | X | X | only on 8-mm |
| 32 | SSM/I wind speed, water vapor, cloud water at Geosat altimeter locations (Wentz) | | | X | X | | X | | |
| 7 | Seasat SMMR polar gridded brightness temperature statistics (Carsey, Pihos) | | | X | X | | X | | |
| 19 | Seasat altimeter geophysical data record level 2 '78 | | | X | X | | X | | |
| 17 | Seasat altimeter sensor data record level 1a '78 | | | X | X | | X | | |
| 18 | Seasat altimeter sensor data record level 1b '78 | | | X | X | | X | | |
| 24 | Seasat scanning multichannel microwave radiometer geophysical data record, level 2 | | | X | X | | X | | |
| 25 | Seasat scanning multichannel microwave radiometer sensor data record level 1a | | | X | X | | X | | |
| 23 | Seasat scanning multichannel microwave radiometer sensor data record level 1b | | | X | X | | X | | |
| 21 | Seasat scatterometer geophysical data record level 1b '78 | | | X | X | | X | | |
| 22 | Seasat scatterometer geophysical data record level 2 '78 | | | X | X | | X | | |
| 31 | Seasat scatterometer global 50km sigma-0 data '78 (Wentz) | | | X | X | only on 8-mm | X | only on 8-mm | only on 8-mm |
| 29 | Seasat scatterometer global dealiased wind vectors '78 (Wentz et al.) | | | X | X | | X | | |
| 2 | Seasat scatterometer global gridded dealiased surface wind vectors (Atlas) | | | X | X | | X | | |
| 13 | Seasat scatterometer global gridded dealiased wind vectors (JPL-UCLA-AES) | | | X | X | | X | | |

Table 2. (cont.) Standard Media and Formats for PO.DAAC Data
(Data are available on other media and in other formats on an "as time permits" basis.)

| | | | | Tapes | | Tape Formats | | | |
|---|---|---|---|---|---|---|---|---|---|
| # | MEDIA AND FORMATS<br>PO.DAAC DATA SETS | FTP | CD-ROM | 9-Track Tape (6250 bpi) or 3480 Tape | 8mm tape | VMS Backup (VAX and ALpha) | Unlabeled (UNIX Compatible) | ANSI labeled | UNIX TAR |
| 8 | Seasat scatterometer global gridded monthly surface wind vectors (Chelton) | | | X | X | | X | | |
| 6 | Seasat scatterometer polar gridded daily sigma-0 statistics (Carsey, Pihos) | | | X | X | | X | | |
| 20 | Seasat scatterometer sensor data record level 1a '78 | | | X | X | | X | | |
| 26 | Seasat visible and infrared radiometer sensor data record '78 | | | X | X | | X | | |
| 27 | TOGA related satellite and in-situ data CD-ROM '85-'90 | | X | | | | | | |
| 36 | TOPEX altimeter geophysical data record | X | | X | X | X | X | | |
| 35 | TOPEX altimeter sensor data record | | | | X | X | | | |
| 28 | TOPEX/Poseidon altimeter merged geophysical data record (NASA/PO.DAAC) | | X | | | | | | |
| 10 | TOVS global gridded water-vapor corrections for Geosat altimeter data (Emery) | | | X | X | | X | | |

## III. DESCRIPTIONS OF PO.DAAC DATA

This section contains descriptions of the PO.DAAC data arranged alphabetically. Since the last publication of the catalog in June 1993, the names of the products have been changed to make them internally consistent. The new names are limited to 80-characters and contain the following in order of appearance:

1. Source (spacecraft, satellite, etc.).
2. Sensor (e.g., altimeter, radiometer, scatterometer).
3. Description (e.g., monthly, weekly, binned, gridded, global, regional, parameter, etc.).
4. Dataset type (e.g., Sensor Data Record, Geophysical Data Record).
5. Processing level and year.
6. Producer name (in parentheses).

In some cases not all the information appears in the title owing to the length restriction. In cases where not all the information can appear, the least important items are dropped. The order of the items in the above list does not necessarily indicate their relative importance.

All data products are associated with a unique product number which stays with the product regardless of name changes and retires with the product. The product number is kept as data is added to the product, e.g. the TOPEX/Poseidon MGDR will remain product # 28 as more cycles of data are added.

Summaries of the products and associated geophysical parameters are provided in Table 1. Summaries of media and format information for each product are provided in Table 2.

**Product Number:** 15

**Product Title:** **AVHRR monthly global MCSST coregistered with CZCS data (Miami, GSFC) CD-ROM**

Previous Title: Miami AVHRR Monthly Multichannel Sea-Surface Temperature (MCSST) and CZCS Phytoplankton Pigment Concentration Data

Source/sensor: Nimbus-7 Coastal Zone Color Scanner (CZCS), Tiros-N/NOAA Advanced Very-High-Resolution Radiometer (AVHRR).

Coverage: 1978–1986 for Nimbus-7 CZCS, 1981–1986 for NOAA AVHRR, both regional and global.

Abstract: The AVHRR MCSST and CZCS phytoplankton pigment concentration data set contains monthly averaged sea-surface temperatures (day and night) derived from NOAA satellite AVHRR which are temporally and spatially coregistered with phytoplankton pigment concentration data acquired from the CZCS instrument on Nimbus-7. The CZCS data cover 1978-1986 and AVHRR data cover the period from 1981-1986, giving 5 years of coregistered data. The data has a resolution of approximately 18 km by 18 km at the equator and is presented on an equal angle grid. DN values can be used to derive the actual SST in degrees Celsius and the phytoplankton content in milligrams per cubic meter. The MCSST SST data was derived from the University of Miami weekly analysis and the CZCS data was acquired from NASA Goddard. For both the phytoplankton and SST, data are presented as global and regional images. Three sets of global and regional data are provided: valid images where all data are measured values, interpolated images where missing values are interpolated, and flag images which provide metadata (land, ice or the number of values used to compute the average value). Selected reduced resolution global browse images have also been included. The data is in HDF format and comes with a copy of NCSA IMAGE S/W for display of the images. The data is provided as a set of 5 CD-ROMs together with a user manual.

Data Set Volume: Approximately 3.5 GB

Smallest order: Set of 5 CD-ROMs

References: Tran, A. V., E. Smith, J. Hyon, R. Evans, O. Brown, and G. Feldman, "Satellite-Derived Multichannel Sea-Surface Temperature and Phytoplankton Pigment Concentration Data: A CD-ROM Set Containing Monthly Mean Distributions for the Global Oceans," JPL D-1035-1 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1992.

Comments: A second set of CD-ROMs will be issued in early 1994 that will contain monthly MCSST data for 1987–1992.

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | Yes, HDF | |
| ANSI labeled | | | | | |
| Unlabeled | | | | | |
| UNIX Tar | | | | | |

**Product Number:** 38
**Product Title:** **AVHRR weekly global and regional 18km gridded daytime MCSST (Miami)**
Previous Title: Miami AVHRR Weekly Multichannel Sea-Surface Temperature (MCSST)
Source/sensor: Tiros-N/NOAA Advanced Very-High-Resolution Radiometer (AVHRR)
Coverage: October 1981–December 1992, global and regional
Abstract: The AVHRR MCSST data set contains weekly averaged multichannel sea-surface temperatures (MCSSTs) derived from the daytime NOAA Advanced High Resolution Radiometer (AVHRR). The data is available as a global set (2048 x 1024 pixels) or as specific regions (512 x 512 pixels). The regions are as follows: Agulhas, Indian Ocean, North Atlantic, Northeast Atlantic, South Atlantic, Northeast Pacific, Northwest Pacific, Southeast Pacific, Southwest Pacific. Software to extract spatial subsets from the global or regional images is included with the data, as is a copy of NCSA IMAGE S/W for display of the images. The data cover the period October 1981– December 1992 and more recent data will be added as they become available. The data, prepared by the University of Miami/Rosenstiel School of Marine and Atmospheric Sciences (RSMAS), have a resolution of approximately 18 km by 18 km at the equator and are presented on an equal angle grid. Where data are missing, values have been interpolated and the data are structured such that a flag value provides information on the number of values incorporated in the average. A data flag of 0 indicates interpolated values. DN values can be used to derive the actual Sea Surface Temperature (SST) in degrees Celsius. The data are available in DSP or HDF format on tape and there is a user manual. Regional data sets are available via FTP.
Data Set Volume: Each global image is approximately 8.4 MB and the regional images are 1.5 MB. Total data set 10.2 GB
Smallest order: One region (see notes under Data/Media Format)
References:
(a) McClain, E. P., W. G. Pichel, and C. C. Walton, "Comparative performance of AVHRR-based multichannel sea-surface temperatures," *Journal of Geophysical Research*, 90, 1985, pp. 11587–11601.
(b) Olson, D. B., G. P. Podesta, R. H. Evans, and O. B. Brown, "Temporal variation in the separation of Brazil and Malvinas Currents," *Deep-Sea Research*, 35, 1988, pp. 1971–1990.
(c) NASA Ocean Data System, "A User's Guide to the NOAA AVHRR MCSST Data Set Produced by The University of Miami/RSMAS," University of Miami, Coral Gables, Florida, 1990.
Comments: Nighttime MCSST's are available as product # 37.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD ROM | Electronic Transfer |
| VMS Backup | DSP | DSP | DSP | | See Note |
| ANSI labeled | DSP | DSP | DSP | | |
| Unlabeled | DSP | DSP | DSP | | |
| UNIX Tar | | DSP, HDF | | | |

Notes: Regions and extractions from this dataset can be produced and delivered in any of the above DSP classifications. Electronic transfers are available depending on the size of the requested order.

**Product Number:** 37
**Product Title:** **AVHRR weekly global and regional 18km nighttime MCSST (Miami)**
Previous Title: Miami AVHRR Weekly Multichannel Sea-Surface Temperature (MCSST)
Source/sensor: Tiros-N/NOAA Advanced Very-High-Resolution Radiometer (AVHRR)
Coverage: October 1981–December 1992, global and regional
Abstract: The AVHRR MCSST data set contains weekly averaged multichannel sea-surface temperatures (MCSSTs) derived from the nighttime NOAA Advanced High Resolution Radiometer (AVHRR). The data is available as a global set (2048 x 1024 pixels) or as specific regions (512 x 512 pixels). The regions are as follows: Agulhas, Indian Ocean, North Atlantic, Northeast Atlantic, South Atlantic, Northeast Pacific, Northwest Pacific, Southeast Pacific, Southwest Pacific. Software to extract spatial subsets from the global or regional images is included with the data as is a copy of NCSA IMAGE S/W for display of the images. The data cover the period October 1981– December 1992 and more recent data will be added as they become available. The data, prepared by the University of Miami/Rosenstiel School of Marine and Atmospheric Sciences (RSMAS) have a resolution of approximately 18 km by 18 km at the equator and are presented on an equal angle grid. Where data are missing, values have been interpolated and the data are structured such that a flag value provides information on the number of values incorporated in the average. A data flag of 0 indicates interpolated values. DN values can be used to derive the actual Sea Surface Temperature (SST) in degrees Celsius. The data are available in DSP or HDF format on tape and there is a user manual. Regional data sets are available via FTP.
Data Set Volume: Each global image is approximately 8.4 MB and the regional images are 1.5 MB.
Smallest order: One region (see notes under Data/Media Format)
References:
(a) McClain, E. P., W. G. Pichel, and C. C. Walton, "Comparative performance of AVHRR-based multichannel sea-surface temperatures," *Journal of Geophysical Research*, 90, 1985, pp. 11587–11601.
(b) Olson, D. B., G. P. Podesta, R. H. Evans, and O. B. Brown, "Temporal variation in the separation of Brazil and Malvinas Currents," *Deep-Sea Research*, 35, 1988, pp. 1971–1990.
(c) NASA Ocean Data System, "A User's Guide to the NOAA AVHRR MCSST Data Set Produced by The University of Miami/RSMAS," University of Miami, Coral Gables, Florida, 1990.
Comments: Daytime MCSST's are available as product # 38.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | DSP | DSP | DSP | | See Note |
| ANSI labeled | DSP | DSP | DSP | | |
| Unlabeled | DSP | DSP | DSP | | |
| UNIX Tar | | DSP,HDF | | | |

Notes: Regions and extractions from this dataset can be produced and delivered in any of the above DSP classifications. Electronic transfers are available depending on the size of the requested order.

**Product Number:** 33
**Product Title:** **DMSP F-8 SSM/I ocean wind speed, liquid water, water vapor '87-'91 (Wentz)**

Previous Title: Wentz Special-Sensor Microwave Imager Geophysical Tapes
Source/sensor: DMSP SSM/I
Coverage: July 1987–December 1991, global
Abstract: This data consists of surface wind speed, integrated water vapor content and atmospheric liquid water over the open ocean. The data were derived from the SSM/I (Special Sensor Microwave Imager) instrument on the DMSP (Defense Meteorological Satellite Program) satellite and were produced by F. Wentz (Remote Sensing Systems). The data cover the period from July 1987 to December 1991, with the exception of a gap between December 3, 1987 to January 12, 1988. The data are organized sequentially by swath. The data consist of logical records which correspond to a single SSM/I scan which contains sixty-four 25 km by 25 km resolution cells. For each cell the following information is given: time, latitude, longitude, a classification index, antenna temperatures and the three geophysical parameters. The classification index is a flag for surface type, e.g., land, sea-ice. No geophysical data was calculated over land or sea-ice. The data is in a binary integer format and users are provided with a Fortran subroutine to unpack the logical records and put the properly scaled parameters in a common area. The data was originally distributed on 9-track tape where each tape contained 2 weeks of data. The data is also available on 8 mm tape. Documentation is provided with this data.

Data Set Volume: 14 GB
Smallest order: Two weeks of data.
References: Wentz, F. J., "User's Manual: SSM/I Geophysical Tapes," Remote Sensing Systems Technical Report 060989, Remote Sensing Systems, 1101 College Avenue, Suite 220, Santa Rosa, CA 95404, 1989, 16 pp.
Comments: SSM/I data from the F-10 satellite is provided in Product #34. There is an overlap of approximately a year in the two products. The instrument on F-8 and F-10 have been calibrated so the data can be used in comparative studies. A new decode routine is sent with the F-10 data.

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 34
**Product Title:** **DMSP F-10 SSM/I ocean wind speed, liquid water, water vapor '90-'92 (Wentz)**

Previous Title: None; this is a new product that supplements Product #33
Source/sensor: DMSP SSM/I
Coverage: July 1990–December 1992, global
Abstract: This data consists of surface wind speed, integrated water vapor content and atmospheric liquid water over the open ocean. The data were derived from the SSM/I (Special Sensor Microwave Imager) instrument on the DMSP (Defense Meteorological Satellite Program) satellite and were produced by F. Wentz (Remote Sensing Systems). The data cover the period from December 1990 to December 1992. Additions are being made to the data set as more data is processed. The data are organized sequentially by swath. The data consist of logical records which correspond to a single SSM/I scan which contains sixty-four 25 km by 25 km resolution cells. For each cell the following information is given: time, latitude, longitude, a classification index, antenna temperatures and the three geophysical parameters. The classification index is a flag for surface type, e.g., land, sea-ice. No geophysical data was calculated over land or sea-ice. The data is in a binary integer format and users are provided with a Fortran subroutine to unpack the logical records and put the properly scaled parameters in a common area. The data was originally distributed on 9-track tape where each tape contained 2 weeks of data. The data is also available on 8 mm tape. Documentation is provided with this data.

Data Set Volume: Approximately 8 GB
Smallest order: Two weeks of data.
References: Wentz, F. J., "User's Manual: SSM/I Geophysical Tapes," Remote Sensing Systems Technical Report 060989, Remote Sensing Systems, 1101 College Avenue, Suite 220, Santa Rosa, CA 95404, 1989, 16 pp.
Comments: SSM/I data from the F-8 satellite is provided in Product #33. There is an overlap of approximately a year in the two products. The instruments on F-8 and F-10 have been calibrated so the data can be used in comparative studies.

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 11
**Product Title:** **Geos-3 altimeter geophysical data record '75-'78**
Previous Title: Geos-3 Altimeter; Geophysical Data Record
Source/sensor: Geos-3 altimeter
Coverage: 14 April 1975–1 December 1978, global
Abstract: These data are revised Geos-3 altimeter measurements. The data set was produced by the National Ocean Survey/National Geodetic Survey (NOS/NGS). The data set contains 5,006,956 altimetric sea surface heights and supporting information such as sea state, wind speed, Swiderski ocean tide height, and Cartwright solid-tide height. Measurements are compressed to a rate of 1 per second using a trim mean filter. The compressed records are stored on 9-track, non labeled, 1600 bit-per-inch magnetic tapes. Seven chronological tapes exist with starting days of April 14 and October 22, 1975; April 20 and November 9, 1976; June 21 and December 6, 1977; August 19, 1978. The data end on December 1, 1978. They have a logical record length of 56 bytes and a block size of 30804 bytes.
Data Set Volume: 170 MB
Smallest order: Entire data set
References: Agreen, R. W., "The 3.5-Year Geos-3 Data Set," NOAA Technical Memorandum NOS NGS 33, NOAA, Rockville, MD, 1982, 8 pp.
Comments: The Geosat GDRs ('85 - '90) are available on CD-ROM from NODC (OMNET: NODC.WDCA, (202) 606-4549)

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 12
**Product Title:** **Geosat altimeter geophysical parameters colocated with NDBC buoy data (Glazman)**
Previous Title: Glazman GEOSAT Altimeter—NBDC Buoy Collocated Data
Source/sensor: National Data Buoy Center (NDBC), Geosat Altimeter
Coverage: 1986–1988, global
Abstract: The data cover three years of Geosat altimeter measurements of the radar cross section, wind speed and significant wave height collocated with buoy measurements of wave spectra, wind speed, sea and air temperatures and atmospheric pressure. Collocation is within 1 hour and a 1-degree-square area around the NOAA NDBC buoys.
Data Set Volume: Approximately 140 MB
Smallest order: Entire data set unless accessed via FTP
References: (a) Glazman, R. E., "Statistical Problems of Wind-Generated Gravity Waves Arising in Microwave Remote Sensing of Surface Winds," *IEEE Transactions of Geoscience and Remote Sensing*, 29, 1, 1991, pp. 135–142.
(b) Glazman, R. E., and S. H. Pilorz, "Effects of Sea Maturity on Satellite Altimeter Measurements," *Journal of Geophysical Research*, 95, C3, 1990, pp. 2857–2870.
Comments: None
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | X | X | X | | Yes |
| ANSI labeled | X | X | X | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | X | | | |

Notes: This data set can be obtained through the anonymous FTP account under the sub-directory of "geo_buoy".

**Product Number:** 1

**Product Title:** **Geosat sea-surface height, SSM/I wind speed, AVHRR SST '87 '89 '90 '91 (Halpern)**

Previous Title: An Atlas of Monthly Mean Distributions of GEOSAT Sea-Surface Height, SSM/I Surface-Wind Speed, and AVHRR/2 Sea-Surface Temperature During 1987, 1989, and 1990

Source/sensor: Geosat, SSM/I, AVHRR/2,

Coverage: 1987, 1989, 1990, 1991, global

Abstract: This product consists of monthly mean global distributions of ocean surface geophysical parameters including sea surface temperature, surface wind speed, sea-surface height and ocean currents. The data, produced by D. Halpern et al., are available for 1987, 1989, 1990 and 1991. Data for 1987, 1989, 1990 and 1991 consist of sea surface temperature from AVHRR and surface wind speed derived from SSM/I. Data for 1987 also includes sea-surface height derived from Geosat. The data set for 1989, 1990 and 1991 also includes ARGOS buoy drift data. Geosat and SSM/I derived data are provided as a 1/3 degree by 1/3 degree gridded product and the AVHRR derived data is provided on a grid approximately 1/3 degrees by 1/3 degrees. All satellite data are presented as two-dimensional arrays with flags to indicate missing data and land. The data is available electronically via FTP or on magnetic tape. The data set is approximately 24 MB. This data was also produced as hard copy in the form of an atlas; for information on this product contact D. Halpern (d.halpern@omnet.nasa.gov).

Data Set Volume: 24 MB

Smallest order: One year

References: The following are available from Dr. D. Halpern, Jet Propulsion Laboratory, Pasadena, California (FAX) (818) 393-6720:
(a) Halpern, D., et al., "An Atlas of Monthly Mean Distributions of Geosat Sea-Surface Height, SSM/I Surface-Wind Speed, AVHRR/2 Sea-Surface Temperature, and ECMWF Surface-Wind Components During 1987," JPL Publication 92-3, January 1992, 111 pp.
(b) Halpern, D., et al., "An Atlas of Monthly Mean Distributions of SSM/I Surface-Wind Speed, ARGOS Buoy Drift, AVHRR/2 Sea-Surface Temperature, and ECMWF Surface-Wind Components During 1989," JPL Publication 92-17, July 1992, 112 pp.
(c) Halpern, D., et al., "An Atlas of Monthly Mean Distributions of SSM/I Surface-Wind Speed, ARGOS Buoy Drift, AVHRR/2 Sea-Surface Temperature, and ECMWF Surface-Wind Components During 1990," JPL Publication 93-1, January 1993, 111 pp.

Comments: Data for 1991 was added to this data product in fall '93.

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | X | X | X | | Yes |
| ANSI labeled | X | X | X | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | X | | | |

Notes: This data set can be located through the anonymous FTP account under the sub-directory of "geo_buoy".

**Product Number:** 30
**Product Title:** **Nimbus-7 SMMR global 60km gridded ocean parameters '79-'84 (Wentz)**
Previous Title: Wentz Nimbus-7 SMMR Ocean Products
Source/sensor: Nimbus-7 SMMR
Coverage: November 1979–September 1984, global
Abstract: This data set consists of three ocean products: oceanic wind speed, columnar water vapor and columnar liquid water. The products are derived from the Nimbus-7 Scanning Multichannel Microwave Radiometer (SMMR) and were produced by F. Wentz (Remote Sensing Systems). The data cover a six year period from 1979 to 1984. The data are global and were derived from nighttime passes to reduce daytime calibration errors. The data are presented by swath and data exists for 13 cells across the swath, resulting in data records that correspond to cells that are approximately 60 x 60 km on the Earth's surface. Observations within 100 km of land are excluded and there is an ice flag. The products were produced from three of the 10 SM. channels which closely correspond to CM/I channels, using the same algorithm as is used to produce products from CM/I data (data set #30). Consequently the SM. derived data can be used in conjunction with CM/I derived data to achieve a longer time series. The data set is approximately 450 MB in size and is available in unlabeled format on magnetic tape. There is a users manual for this data set.
Data Set Volume: Approximately 450 MB
Smallest order: One year unless data is accessed via FTP
References: Wentz, F. J., and E. A. Francis, "Nimbus-7 SMMR Ocean Products, 1979–1984," Remote Sensing Systems Technical Report 033192, Remote Sensing Systems, 1101 College Avenue, Suite 220, Santa Rosa, CA 95404, 1992, 36 pp.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | X | X | X | | Yes |
| ANSI labeled | X | X | X | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | X | | | |

**Product Number:** 14
**Product Title:** **SMMR, GOES-W VISSR Tropical Pacific surface thermal forcing parameters (Liu)**

Previous Title: Liu Monthly Surface Thermal Forcing Data for the Tropical Pacific
Source/sensor: Nimbus-7 SMMR, GOES-W VISSR
Coverage: January 1980–September 1983, Tropical Pacific (20°S–20°N)
Abstract: The data product consists of surface latent heat flux, surface solar irradiance and net heat flux for January 1980 to September 1983. The data are provided for the tropical Pacific Ocean, i.e. the Pacific Ocean that lies between 20 degrees South and 20 degrees North. The data are monthly averaged and the spatial resolution is 2 degrees by 2 degrees. Latent heat flux fields are derived from Nimbus-7 SMMR data and the insolation fields are derived from the visible radiance measurements from the GOES-W VISSR (Visible/Infrared Spin-Scan Radiometer). The data product consists of 45 monthly files for each of the 3 parameters for January 1980 - September 1983. Latent heat flux for October 1983 is also available. The data were produced by T. Liu and C. Gauthier (Jet Propulsion Laboratory).

Data Set Volume: Approximately 140 MB
Smallest order: Entire data set unless accessed via FTP
References:
(a) Liu, W. T., "Moisture and Latent Heat Flux Variabilities in the Tropical Pacific Derived From Satellite Data," *Journal of Geophysical Research*, 93, C6, 1988, pp. 6749–6760.
(b) Liu, W. T., "1982–1983 El Nino Atlas, Nimbus-7 Microwave Radiometer Data," JPL Publication 87-5, Jet Propulsion Laboratory, Pasadena, California, 1987.
(c) Liu, W. T., and C. Gauthier, "Thermal Forcing on the Tropical Pacific From Satellite Data," *Journal of Geophysical Research*, 95, C8, 1990, pp. 13209–13217.

Comments: None
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | X | X | X | | Yes |
| ANSI labeled | X | X | X | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | X | | | |

**Product Number:** 9
**Product Title:** **SSM/I global gridded water vapor corrections for Geosat altimeter data (Emery)**
Previous Title: Emery Special-Sensor Microwave Imager Water-Vapor Corrections
Source/sensor: DMSP SSM/I
Coverage: 15 July 1987–16 August 1987, global
Abstract: Emery, et al. gridded, 1-degree-latitude-by-1-degree-longitude, weekly, vertically integrated water-vapor corrections for Geosat altimetry
Data Set Volume: 4 MB
Smallest order: Entire data set
References: Emery, W., G. Born, D. Baldwin, and C. Norris, "Satellite derived water-vapor corrections for Geosat altimetry," *Journal of Geophysical Research, Special Geosat Issue, Part 1*, 95, 1990, pp. 2953–2965.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 4
**Product Title:** **SSM/I global heat flux, wind stress vectors from ECMWF assimilation (Atlas)**

Previous Title: Atlas, R., Heat Fluxes and Wind Stress Vectors From SSM/I Model Assimilation

Source/sensor: DMSP SSM/I, ECMWF model

Coverage: July 1987–June 1988, global

Abstract: This data product consists of global heat flux and wind stress vectors derived from the assimilation of DMSP SSM/I data into ECMWF first-guess model fields for July 1987 to June 1988. This was the first year of SSM/I data. The product was produced by Robert Atlas and Juan-Carlos Jusen (NASA Goddard Space Flight Center). Both u and v components are provided for the surface wind stress parameters. The flux fields, sensible and latent heat flux, are averaged on a 2 degree latitude by 2.5 degree longitude grid.

Data Set Volume: Approximately 140 MB

Smallest order: Entire data set unless accessed via FTP

Comments: None

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | X | X | X | | Yes |
| ANSI labeled | X | X | X | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | X | | | |

Notes: This dataset can be located through the anonymous FTP account under the sub-directory of "atlasfluxes".

**Product Number:** 3
**Product Title:** **SSM/I gridded 5-day and monthly averaged surface wind vectors (Atlas)**
Previous Title: Atlas, R., Gridded, Averaged Special-Sensor Microwave Imager (SSM/I) Wind Observations (Atlas Level 3.5)
Source/sensor: Defense Meteorological Satellite Program (DMSP) SSM/I, ship, and buoy reports
Coverage: July 1987–June 1990, global
Abstract: The SSM/I gridded 5 day and monthly averaged surface wind vectors data set was produced by Robert Atlas and Joseph Ardizzone (NASA Goddard Space Flight Center). This ocean data product is derived from DMSP SSM/I data combined with data from ship and buoys, and ECMWF first guess winds. The data product has been designated as level 3.5 by Atlas because the data is binned. The data, which covers a three year period from July 1987–June 1990, are both 5- day and monthly averaged. The data are gridded: 2 degrees latitude by 2.5 degrees longitude. The data volume is approximately 280 MB in size. The data is provided on magnetic tape. This data set is related to the following data sets: #4 - SSM/I global heat flux, wind stress vectors from ECMWF assimilation (Atlas), which provides heat fluxes and wind stress vectors for the same time period and using the same grid, and # 5 - SSM/I surface-wind vectors at SSM/I locations and as gridded analysis (Atlas), which is comprised of the same data with different temporal averaging.
Data Set Volume: Approximately 280 MB
Smallest order: Entire data set.
References: (a) Atlas, R., and S. C. Bloom, "Global surface-wind vectors resulting from the assimilation of satellite wind-speed data in atmospheric general circulation models," *OCEANS '89 Proceedings*, IEEE Publication Number 89CH2780-5, 1989, pp. 260–265.
(b) Atlas, R., S. C. Bloom, R. N. Hoffman, J. V. Ardizzone, and G. Brin, "Space-based surface-wind vectors to aid understanding of air–sea interactions," *Eos Transactions*, American Geophysical Union, 72, 1991, p. 18.
Comments: None.
Data/Media Format:

| | **Media Type** | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 5
**Product Title:** **SSM/I surface-wind vectors at SSM/I locations and as gridded analysis (Atlas)**
Previous Title: Atlas, R., Surface-Wind Vectors at Special-Sensor Microwave Imager (SSM/I) Locations (Atlas Level 2.5) and Gridded, Surface-Wind Analysis (Atlas Level 3.0)
Source/sensor: DMSP SSM/I
Coverage: June 1987–June 1990, global
Abstract: This data product consists of 6-hourly surface-wind vectors (directions assigned) for the global oceans for a three year period, June 1987–June 1990. The product was produced by Robert Atlas and Joseph Ardizzone (NASA Goddard Space Flight Center) and has two level designations because it consists of two data sets. The Atlas level 2.5 data set consists of the DMSP SSM/I derived 6-hourly surface-wind vectors provided at SSM/I data locations. The Atlas level 3.0 data is gridded, on a 2 degree latitude by 2.5 degree longitude grid, and is a surface wind analysis which combined SSM/I derived winds, ship and buoy reports and ECMWF first guess winds. The combined data product consists of approximately 1 GB and is in IDF data format. The data is available via FTP or on tape. This data set is related to product #3, SSM/I gridded 5-day and monthly averaged surface wind vectors (Atlas, Ardizzone) and product #4 - SSM/I global heat flux, wind stress vectors from ECMWF assimilation (Atlas).
Data Set Volume: 1 GB
Smallest order: Entire data set
References: (a) Atlas, R., and S. C. Bloom, "Global surface-wind vectors resulting from the assimilation of satellite wind-speed data in atmospheric general circulation models," *OCEANS '89 Proceedings*, IEEE Publication Number 89CH2780-5, 1989, pp. 260–265.
(b) Atlas, R., S. C. Bloom, R. N. Hoffman, J. V. Ardizzone, and G. Brin, "Space-based surface-wind vectors to aid understanding of air–sea interactions," *Eos Transactions*, American Geophysical Union, 72, 1991, p. 18.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | X | X | X | | Yes |
| ANSI labeled | X | X | X | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | X | | | |

**Product Number:** 32
**Product Title:** **SSM/I wind speed, water vapor, cloud water at Geosat altimeter locations (Wentz)**
Previous Title: Wentz Special-Sensor Microwave Imager Collocated Along the GEOSAT Track
Source/sensor: DMSP SSM/I, Geosat altimeter
Coverage: July 1987–December 1989, global
Abstract: The data set consists of wind speed, water vapor, and atmospheric water over the ocean derived from the SSM/I (Special Sensor Microwave Imager) instrument, interpolated to the Geosat altimeter track. The SSM/I was on the DMSP (Defense Meteorological Satellite Program) satellite. This data set is global in extent and covers the period from July 1987 to December 1989. Each data record contains the time, latitude and longitude for the Geosat subtrack at 10 sec intervals; SSM/I wind speed, water vapor and cloud water interpolated to the Geosat location; and a flag that indicates ocean, land, ice or missing Geosat data. The data were produced by F. Wentz (Remote Sensing Systems). The data set is approximately 140 MB and is in unlabeled format. It is available on magnetic tape. A subroutine is provided to read the data, and there is a user's manual.
Data Set Volume: Approximately 140 MB
Smallest order: Entire data set
References: Wentz, F. J., "User's Manual: Collocated Geosat-SSM/I Tape, 1987–1989," Remote Sensing Systems Technical Report 100190, Remote Sensing Systems, 1101 College Avenue, Suite 220, Santa Rosa, CA 95404, 1990, 3 pp.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 7
**Product Title:** **Seasat SMMR polar gridded brightness temperature statistics (Carsey, Pihos)**

Previous Title: Carsey and Pihos Polar-Gridded Seasat Scanning, Multichannel Microwave Radiometer

Source/sensor: Seasat SMMR

Coverage: 7 July 1978–10 October 1978, north and south polar grids

Abstract: This data set contains SASS sigma-0 and SMMR antenna-pattern corrected (APC) brightness temperature data for the entire Seasat mission. The data have been averaged into 100 km, 1-day grids over both polar regions. Each channel in the 100 km, 1-day format contains a mean, standard deviation, number samples, minimum and maximum. Each 100 km box is classified as land, water or mixed.

Data Set Volume: 70 MB

Smallest order: Entire data set

References: Carsey, F., and G. Pihos, "SASS Polar Gridded Data," JPL D-8196 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1983.

Comments: None.

Data/Media Format:

| | **Media Type** | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 19
**Product Title:** **Seasat altimeter geophysical data record level 2 '78**
Previous Title: Seasat Altimeter Geophysical Data Record Level 2
Source/sensor: Seasat altimeter
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set contains level 2 automatic gain control data, sea surface height, satellite height (with respect to the reference ellipsoid) and wind speed data. In addition to its main parameters, this data set contains corrections for the influences of wet and dry atmospheric path, ionosphere and tides. The orbit has a vertical error of about 1 meter at characteristic periods of 100 minutes (1 revolution). The altimeter error is about 10 cm, decommutated over points separated in time by 1 second. Corrections for altimeter bias and electromagnetic bias are not included and orbit corrections must be performed by the user .
Data Set Volume: 20.3 GB
Smallest order: Approximately 140 MB
References: (a) "JPL Seasat Project, Geophysical Data Record (GDR) User's Handbook: Altimeter," JPL 622-97, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1980.
(b) JPL Seasat Project, "Altimeter Geophysical Algorithm Specifications," JPL 622-226 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1980.
Comments: None.
Data/Media Format:

| | **Media Type** | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 17
**Product Title:** **Seasat altimeter sensor data record level 1a '78**
Previous Title: Seasat Altimeter; Sensor Data Record, Level 1a
Source/sensor: Seasat altimeter
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set contains Level 1a engineering parameters such as satellite height, waveform data, wave height and automatic gain control. These are primary parameters telemetered to the ground processing system at a 10/second rate and are uncorrected for environmental effects. The objective of the altimeter (ALT) was to determine ocean topography with a height measurement precision of 10 cm. Altitude was determined by measuring the time required for a pulse to be transmitted, reflected from the ocean surface and received by the altimeter. The altimeter carrier frequency was 13.5 GHz and operated in chirp pulse mode with a 3.2 micro-sec uncompressed pulse width and 3.125 nanosecond compressed pulse width. The pulse limited footprint diameter was 1.2 km for calm seas and up to 12 km for rough seas.
Data Set Volume: 20.3 GB
Smallest order: Approximately 140 MB, which is equivalent to a day.
References: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 18
**Product Title:** **Seasat altimeter sensor data record level 1b '78**
Previous Title: Seasat Altimeter; Sensor Data Record, Level 1b
Source/sensor: Seasat altimeter
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set contains Level 1b data. The parameters are the satellite height above the sea surface (from the altimeter), sigma-naught, and the satellite height with respect to the reference ellipsoid from orbit determination.
Data Set Volume: 3.5 GB
Smallest order: Approximately 140 MB
References: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 24
**Product Title:** **Seasat scanning multichannel microwave radiometer geophysical data record, level 2**

Previous Title: Seasat Scanning, Multichannel Microwave Radiometer (SMMR) Geophysical Data Record, Level 2

Source/sensor: Seasat SMMR
Coverage: 7 July 1978–10 October 1978, global
Abstract: The parameters derived from Scanning Multichannel Microwave Radiometer (SMMR) brightness temperatures and available in the geophysical data records are sea surface temperature, rain rate, wind speed at the ocean's surface, integrated column density of water vapor and liquid water in the atmosphere. The SMMR is a passive microwave radiometer measuring dual polarized microwave radiation from the earth's surface and atmosphere in 5 frequencies: 6.63, 10.69, 18.0, 21.0 and 37.0 GHz. SMMR swath width is 600 km. Global coverage was achieved within the orbital extremes: +77/-72 deg. latitude from July 7 - August 17, 1978. From July 7 to August 26, 1978, the ground track was repeated every 17 days. From August 27 to October 10, 1978, the ground track repeated once every 3 days. The measurement temporal resolution is 10/second. This data set contains Level 2.0 geophysical parameters corrected for environmental effects.

Data Set Volume: Approximately 2.9 GB
Smallest order: Approximately 140 MB
References: JPL Seasat Project, "Geophysical Data Record (GDR) User's Handbook: SMMR," JPL D-110, Seasat Document 622-205, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1982.

Comments: None.

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 25
**Product Title:** **Seasat scanning multichannel microwave radiometer sensor data record level 1a**
Previous Title: Seasat Scanning, Multichannel Microwave Radiometer (SMMR) Sensor Data Record, Level 1a
Source/sensor: Seasat SMMR
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set contains Level 1a data consisting of decommutated earth-located information about the intensity of radiation emmitted from the sea in a microwave band in engineering units (watts, volts). Output is in the form of Sensor Data Record tapes. The Scanning Multichannel Microwave Radiometer (SMMR) is a passive microwave radiometer measuring dual polarized microwave radiation from the earth's surface and atmosphere in 5 frequencies; 6.63, 10.69, 18.0, 21.0 and 37.0 GHz. SMMR swath width is 600 km. Global coverage was achieved within the orbital extremes: +77/-72 deg. latitude from July 7 - August 17, 1978. From July 7 to August 26, 1978, the ground track was repeated every 17 days. From August 27 to October 10, 1978, the ground track repeated once every 3 days. The measurement temporal resolution is 10/second.
Data Set Volume: 11.9 GB
Smallest order: Approximately 140MB
References: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.
Comments: Investigators are referred to Product #24 for geophysical products.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 23
**Product Title:** **Seasat scanning multichannel microwave radiometer sensor data record level 1b**
Previous Title: Seasat Scanning, Multichannel Microwave Radiometer (SMMR) Geophysical Data Record, Level 1b
Source/sensor: Seasat SMMR
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set contains level 1b data consisting of calibrated information about the intensity of radiation emitted from the sea in a microwave band. The parameter is calibrated brightness temperature. Output is in the form of calibrated Sensor Data Records.
Data Set Volume: 45.7 GB
Smallest order: Approximately 140 MB
References: JPL Seasat Project, "Geophysical Data Record (GDR) User's Handbook: SMMR," JPL 622-205, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1982.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 21
**Product Title:** **Seasat scatterometer geophysical data record level 1b '78**
Previous Title: Seasat-A Satellite Scatterometer Geophysical Data Record, Level 1b
Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set contains the Level 1b sigma-naught and backscatter measurements derived from the Sensor Data Record and corrected for atmospheric attenuation. The measurement temporal resolution is 1.89 seconds.
Data Set Volume: 45.3 GB
Smallest order: Approximately 140 MB
References: Boggs, D. H., "Geophysical Data Record (GDR) User's Handbook: Scatterometer," JPL D-129, Seasat Document 622-232 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1982.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 22
**Product Title:** **Seasat scatterometer geophysical data record level 2 '78**
Previous Title: Seasat-A Satellite Scatterometer Geophysical Data Record, Level 2
Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set contains Level 2.0 sigma-naught corrected for atmospheric and oceanic attenuation. It also contains windspeed and 4 possible directions ('ambiguities') derived from the backscatter coefficient. Output is Geophysical Data Record (GDR) magnetic tapes, with a measurement temporal resolution of 1.89 seconds.
Data Set Volume: Approximatly 5.7 GB
Smallest order: Approximately 140 MB
References: Boggs, D. H., "Geophysical Data Record (GDR) User's Handbook: Scatterometer," JPL D- 129, Seasat Document 622-232 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1982.
Comments:
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 31
**Product Title:** **Seasat scatterometer global 50km sigma-0 data '78 (Wentz)**
Previous Title: Wentz Seasat-A Satellite Scatterometer Sigma-Naught
Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set consists of scatterometer sigma-0 data over the ocean for the entire Seasat mission, July '78 to October '78, and was produced by F. Wentz (Remote Sensing Systems). The data are presented chronologically by swath and consist of the forward and aft values, binned on a 50 by 50 km basis. The data are global in extent. Each data record corresponds to a 50 km strip which contains 50 km boxes oriented perpendicular to the nadir track. For each box, there are 17 elements including time, location, incidence angles, sigma-0 values, instrument corrections and data quality flags. A read program and further information is included with the data as is a written description. The data is a little over 2.5 GB in volume and is available in unlabeled format on magnetic tape.
Data Set Volume: 2.5 GB
Smallest order: Six days, approximately 140 MB
References: Wentz, F. J., "Documentation for Program Order: Collocating SASS Sensor Data in 50-km Bins," Remote Sensing Systems Technical Report 113082, Remote Sensing Systems, 1101 College Avenue, Santa Rosa, CA 95404, 1982, 23 pp.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | X | | | |
| ANSI labeled | | X | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | X | | | |

**Product Number:** 29
**Product Title:** **Seasat scatterometer global dealiased wind vectors '78 (Wentz et al.)**
Previous Title: Wentz, Atlas, and Freilich Dealiased Seasat-A Satellite Scatterometer
Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set consists of wind vectors over the ocean derived from the Seasat scatterometer and covers a three-month period from July to October 1978. The data are global and are presented chronologically by swath. Each record contains data for a 100 km by 1500 km area on the ocean surface; the 100 km side is in the along track direction. Within this area, data (wind speed and direction) is provided for thirteen of fifteen 100-km cells. No wind vectors are computed for the port and starboard cells adjacent to the nadir cell; and for the nadir cell, only wind speed is available. Ambiguities in the wind direction are resolved by use of a global weather prediction model. The data set is the outcome of a reprocessing effort by F. Wentz, R. Atlas, and M. Freilich, involving new algorithms, that was undertaken in response to systematic errors in the original wind vectors produced by the Seasat Project. The data set is approximately 240 MB and is available in unlabeled format on magnetic tape.
Data Set Volume: 30.9 GB
Smallest order: Entire data set.
References: Wentz, F., "User's Manual: Seasat Scatterometer Wind Vectors," Remote Sensing Systems Technical Report 081586, Remote Sensing Systems, 1101 College Avenue, Santa Rosa, CA 95404, 1986, 21 pp.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 2
**Product Title:** **Seasat scatterometer global gridded dealiased surface wind vectors (Atlas)**
Previous Title: Atlas, R., Dealiased Seasat-A Satellite Scatterometer
Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set consists of wind vectors over the ocean derived from the Seasat scatterometer and covers a three-month period from July to October 1978. The data are global and are presented chronologically by swath. The data, produced by R. Atlas (NASA Goddard Space Flight Center) are a result of processing the Wentz 100 km by 100 km scatterometer data (PO.DAAC product #29) using an objective ambiguity removal scheme. The data set is approximately 240 MB and is available in unlabeled format on magnetic tape. A program to read the tapes is included. There is a users manual for this product.
Data Set Volume: Approximately 560 MB
Smallest order: Entire data set
References: Atlas, R., A. J. Busalacchi, M. Ghil, E. Kalnay, and S. Bloom, "Global surface wind and flux fields from model assimilation of Seasat data," *Journal of Geophysical Research*, 92, 1987, pp. 6477–6487.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 13
**Product Title:** **Seasat scatterometer global gridded dealiased wind vectors (JPL-UCLA-AES)**
Previous Title: JPL–University of California at Los Angeles (UCLA)–Atmospheric Environment Science (AES), Ontario, Canada, Dealiased Seasat-A Satellite Scatterometer
Source/sensor: Seasat SASS
Coverage: 6 September 1978–20 September 1978, global
Abstract: This data set contains reprocessed surface wind vector data. The data is dealiased and gridded on a 1-degree by 1-degree grid. Data are binned every 6 hours.
Data Set Volume: 120 MB
Smallest order: Entire data set.
References: Wurtele, M. G., P. M. Woiceshyn, S. Peteherych, M. Borowski, and W. S. Appleby, "Wind direction alias removal studies of Seasat scatterometer derived wind fields," *Journal of Geophysical Research*, 87, 1982, pp. 3365–3377.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 8
**Product Title:** **Seasat scatterometer global gridded monthly surface wind vectors (Chelton)**
Previous Title: Chelton Monthly Seasat-A Satellite Scatterometer
Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Abstract: These data are monthly averages of dealiased, gridded surface wind vector for July, August, September and the first part of October 1978. The spatial resolution is 2.5 degrees. These data are 'dealiased' using an objective ambiguity-removal scheme. A subroutine to read the data is included.
Data Set Volume: 140 MB
Smallest order: Entire data set
References: Chelton, D. B., A. M. Mestas-Nunez, and M. H. Freilich, "Global wind stress and Sverdrup circulation from the Seasat Scatterometer," *Journal of Physical Oceanography*, 20, 1990, pp. 1175–1205.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 6
**Product Title:** **Seasat scatterometer polar gridded daily sigma-0 statistics (Carsey, Pihos)**
Previous Title: Carsey and Pihos Polar-Gridded Seasat-A Satellite Scatterometer
Source/sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, north and south polar grids
Abstract: This condensed data set contains SASS sigma-0 and SMMR antenna-pattern corrected (APC) brightness temperature data for the entire Seasat mission. The data have been averaged into 100 km, 1-day grids over both polar regions. Each channel in the 100 km, 1-day format contains a mean, standard deviation, number samples, minimum and maximum. Each 100 km box is classified as land, water or mixed; no other land mask was used. A program to read the data are provided.
Data Set Volume: 149 MB
Smallest order: Entire data set.
References: Carsey, F., and G. Pihos, "Seasat SMMR Polar Gridded Data," JPL D-8195 (internal document), Jet Propulsion Laboratory, Pasadena, California, 1983.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 20
**Product Title:** **Seasat scatterometer sensor data record level 1a '78**
Previous Title: Seasat-A Satellite Scatterometer (SASS) Sensor Data Record, Level 1a
Source/Sensor: Seasat SASS
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set contains the Level 1a backscatter measurements and telemetered parameters in engineering units without atmospheric corrections applied. The measurement temporal resolution is 1.89 seconds.
Data Set Volume: 11.5 GB
Smallest order: Approximately 140 MB
References: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 26
**Product Title:** **Seasat visible and infrared radiometer sensor data record '78**
Previous Title: Seasat Visible and Infrared Radiometer (VIRR) Sensor Data Record
Source/sensor: Seasat Visible and Infrared Radiometer (VIRR)
Coverage: 7 July 1978–10 October 1978, global
Abstract: This data set contains infrared radiances as level 1 decommutated, Earth-located information in watts. The VIRR operated in the visible band (0.49-0.94 micro-meters) and in the infrared band (10.5-12.5 micro-meters). The swath of the VIRR is approximately 2280 kilometers wide, centered on nadir. The portions of the scan sampled were the earth scan (from +/- 51.2 degrees of nadir) containing the scientific information over a 2280 km swath width, and the space (cold reference) and internal housing (warm reference) view that were used for inflight calibration. The function of the VIRR was to provide day and night images of visible reflectance and thermal infrared emission from ocean, coastal and atmospheric features that could aid in the interpretation of data from other Seasat sensors.
Data Set Volume: 11.5 GB
Smallest order: Approximately 140 MB
References: JPL Seasat Project, "Seasat-A Sensor Data Record Tape Specification: Interface Control Document and Telemetry Dictionary," JPL 622-57, Rev. A (internal document), Jet Propulsion Laboratory, Pasadena, California, 1979.
Comments: None.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

**Product Number:** 27
**Product Title:** **TOGA related satellite and in-situ data CD-ROM '85-'90**
Previous Title: Tropical Ocean and Global Atmosphere (TOGA) Related Collection of Satellite and In-Situ Data, 1985–1990

Source/sensor: Multisensor, satellite and in-situ
Coverage: 1985–1990, global/regional depending on data set
Abstract: The Tropical Ocean and Global Atmosphere (TOGA) CD-ROM product contains TOGA related data sets and PC software to browse and extract the data. There are 15 data sets included in this first release of the package which covers the period 1985 -1990. These data sets are: ECMWF - many parameters from the European Center for Medium Range Weather Forecasting's Basic Surface data set, Basic Upper Air data set, and Supplementary data are contained on the TOGA CD-ROM set on a 2.5 degree grid (5 degree grid for Upper Air); CAC - Monthly analyzed sea-surface temperature fields and climatology-mean monthly fields on a 2.0 degree grid provided by NOAA/NMC Climate Analysis Center; IFREMER - Temperature and salinity sub-surface measurements provided by the TOGA Sub-surface Data Center at Brest, France; UHAWAII - Sea Level data for the Pacific and Indian oceans provided by the TOGA Sea Level Centre at the University of Hawaii; UKMO - Surface marine observations from Voluntary Observing Ships compiled by the United Kingdom Meterological Office; PMEL - Air temperature, air pressure, ocean currents and temperatures from islands and moorings in the Pacific provided by the NOAA Pacific Marine Environmental Laboratory; FSU and ORSTOM - Monthly analyzed pseudo-stress fields and climatology over the Pacific and Indian (FSU), and Atlantic (ORSTOM) provided by Floida State University and Orstom Center at Brest, France; MEDS and AOML - Air temperature and pressure, sea surface temperature, and surface wind speed from satellite-tracked drifting buoys provided by the Canadian Marine Environmental Data Service and the NOAA Atlantic Oceanographic and Meteorological Laboratory; ISCCP - Monthly average cloud, surface, and atmospheric properties provided by the International Satellite Cloud Climatology Project; GPCP - Precipitation data provided by the Global Precipitation Climatology Project; NCAR - climatologies provided by the National Center for Atmospheric Research; LODYC - Results from an operational model of the tropical Atlantic from the Universit of Pierre et Marie Curie; and Geosat - Sea surface height data provided by the NOAA National Ocean Service. Data formats vary with data set but are primarily in ASCII and GRIB.

Data Set Volume: Set of 6 CD-ROMs.
Smallest order: Complete set of 6 CD-ROMs
References: "Tropical Ocean and Global Atmosphere (TOGA) International Implementation Plan," International TOGA Project Office, IPTO no.1, pp. 70

Comments: This data set will be available July 1994.
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | Yes | |
| ANSI labeled | | | | | |
| Unlabeled | | | | | |
| UNIX Tar | | | | | |

**Product Number:** 36
**Product Title:** **TOPEX altimeter geophysical data record**
Previous Title: None, new product.
Source/sensor: NASA TOPEX Altimeter
Coverage: Global
Abstract: The TOPEX Geophysical Data Record contains global coverage altimeter data from the NASA dual frequency (Ku and C band) altimeter on TOPEX/Poseidon. The objective of the TOPEX/Poseidon mission, launched in August 1992 and currently operating, is to determine ocean topography with a sea surface height measurement precision of 3 cm and a sea level measurement accuracy of 13 cm. The GDR contains the geolocated corrected Sea Surface Height using a precise orbit. The Sea Surface Height has been corrected for instrument and environmental effects. The values of the individual corrections are given and include wet and dry tropospheric path delay, ionospheric path delay and electromagnetic bias. The altimeter also measures significant wave height to within 0.5 m or 10% of the significant wave height and the radar backscatter coefficient to within 0.25 dB precision, 1.0 dB absolute. Estimates of the geoid, mean sea surface and various tides are also present. Brightness Temperatures at nadir from the TMR at 18, 21, 37 GHz are given. The data is organized into a 'package' containing data from one 10 day repeat cycle. Each data file corresponds to a 'pass' of data which is one half revolution. Each cycle contains 254 passes, although files for certain passes may not be present because of sharing the antenna with Poseidon or because of missing data. It is emphasized that this product is considered research data because of the form and content of the data. It is swath data and there are no images. S/W to extract the parameters from each record is the responsibility of the investigators. In addition the data analysis is still in its early stages and there is, as yet, no consensus on how to filter the data. Hence a suite of parameters and flags have been included to allow users to make their own selection criteria. The precision orbit accuracy is better than 4 cm.
Data Set Volume: Each cycle is approximately 120 MB
Smallest order: One cycle (one pass file, 10 days)
References: TOPEX Project 633-721 TOPEX/POSEIDON Project GDR User's Handbook,JPL D-8944, Rev. A, October 1993.
TOPEX Project 633-751-23-004 TOPEX Ground System Software Interface Specification, Volume 2:Design (SIS-2) JPL D-8590, Rev. C (March 1993)
Comments: Investigators may find the Merged Geophysical Data Records (Product # 28), which contains data processed from both altimeters, more useful.

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | VAX | | VAX | | |
| Unlabeled | UNIX | | UNIX | | |
| UNIX Tar | | VAX/UNIX | | | |

Notes: The data for a corresponding TOPEX cycle fit on one 9-track tape or 8mm tape. This data set can be ordered in two ways, as VAX or IEEE byte ordered data integer.

**Product Number:** 35
**Product Title:** **TOPEX altimeter sensor data record**
Previous Title: None, new product
Source/sensor: NASA TOPEX Altimeter
Coverage: September 1992–ongoing, global
Abstract: The TOPEX Altimeter Sensor Data Record contains global coverage altimeter data. The objective of the TOPEX/Poseidon mission, launched in August 1992 and currently operating, is to determine ocean topography with a sea surface height measurement precision of 3 cm and a sealevel measurement accuracy of 13 cm. The data product contains the sensor data from one of the two altimeters, a NASA dual frequency (Ku and C band) instrument similar to the Geosat altimeter. The SDR data are distributed on magnetic tape. The Alt SDR contains two types of frames: Engineering and Science. The data consists of pass files containing time-tagged, earth-located, decommutated, EU converted altimeter science and engineering data records. The Engineering Frames contain only altimeter engineering data and is not described further here, although it is described in the TOPEX Project Alt SDR Data document listed in the references. The Alt SDR Science Frames contain the time-tagged, geolocated (operational orbit), uncorrected Ku and C band ranges. Both one per frame (approximately 1 second) and 10 per frame ranges are given. It also contains 10 per frame altimeter waveforms. Other information contained in these frames include values; uncorrected significant wave height values; waveform derived attitude; and spacecraft roll, pitch and yaw. As the mission is still in progress, data becomes available as it is processed. It is emphasised that this product is considered research data because of the form and content of the data. The data consists entirely of files comprising headers and data records which contain over a hundred parameters for each second. It is swath data and there are no images. S/W to extract the parameters from each record is the responsibility of the investigators. In addition the data analysis is still in its early stages and there is, as yet, no consensus on how to filter the data. Hence a suite of parameters and flags have been included to allow users to make their own selection criteria. The orbit accuracy is better than 10 cm. Read S/W is available via anonomous FTP (see Pg. 2) on disk1:[PUB.SOFTWARE.ASDRT].
Data Set Volume: Each cycle is approximately 1.3 GB.
Smallest order: One cycle (one pass file, 10 days)
References: TOPEX Project 633-751-23-001 Rev.B, TOPEX Ground System Software Interface Specification Design (SIS-2) - Alt imeter Sensor Data Record (SDR) - Alt SDR Data, JPL D-8591, Rev. B (May 1992).
Comments: Investigators may find the Merged Geophysical Data Records (Product # 28), which contains higher precision data which has been further processed from both altimeters, more useful. However, the MGDR does not contain waveform data.

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | | | | | |
| UNIX Tar | | VAX | | | |

Notes: The data for a corresponding TOPEX cycle fit on one 8mm tape.

**Product Number:** 28

**Product Title:** **TOPEX/Poseidon altimeter merged geophysical data record (NASA/PO.DAAC)**

Previous Title: TOPEX/POSEIDON Altimeter; Merged Geophysical Data Record

Source/sensor: NASA TOPEX altimeter and CNES Poseidon solid-state altimeter

Coverage: September 1992–ongoing, global

Abstract: The TOPEX/Poseidon MGDR (Merged Geophysical Data Record) contains global coverage altimeter data. The objective of the TOPEX/Poseidon mission, launched in August 1992 and currently operating, is to determine ocean topography with a sea surface height measurement precision of 3 cm and a sealevel measurement accuracy of 13 cm. The data product combines measurements from two altimeters, a NASA dual frequency (Ku and C band) instrument similar to the Geosat altimeter, and a French (CNES) instrument which is a proof-of-concept solid-state altimeter (Ku band). The MGDR data are distributed on CD-ROMs (ISO 9660) and in an integer format usable on VAX, UNIX, PC and Mac's. Each CD-ROM contains two ten day cycles of data, cross-over files for each cycle and read software for VAX and UNIX. The data from both altimeters is in a common format. CD-ROMs are being produced and are available as the data is processed. It is emphasized that this product is considered research data because of the form and content of the data. The data consists entirely of files comprising headers and data records which contain over a hundred parameters for each second. It is swath data and there are no images. Read S/W is contained on the CD-ROM. Analysis S/W is the responsibility of the user. Calculation of sea surface height from the altimeter range and environmental corrections is the responsibility of the user. In addition the data analysis is still in its early stages and there is, as yet, no consensus on how to filter the data. Hence a suite of parameters and flags have been included to allow users to make their own selection criteria. The precision orbit accuracy is better than 4 cm.

Data Set Volume: 18 CD-ROMs as of January '94, additional CD-ROMs added approximately every 20 days

Smallest order: 1 CD-ROM containing 2 cycles (20 days)

References: Fu, L.-L., M. Lefebvre and E. Christensen, TOPEX/POSEIDON: The Ocean Topography Experiment, *Eos Transactions*, American Geophysical Union, 72(35), 1991, p.p. 369-373.

Fu, L.-L. and E.J. Christensen, TOPEX/Poseidon performance evaluated, *Eos Transactions*, American Geophysical Union, 74 (27), 1993, p.p. 297, 302.

Comments: Waveform data is not included in the MGDR. Waveform data is provided in product #35, the TOPEX altimeter sensor data record.

Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | Yes | |
| ANSI labeled | | | | | |
| Unlabeled | | | | | |
| UNIX Tar | | | | | |

**Product Number:** 10
**Product Title:** **TOVS global gridded water-vapor corrections for Geosat altimeter data (Emery)**

Previous Title: Emery Tiros Operational Vertical Sounder (TOVS) Water-Vapor Corrections
Source/sensor: National Oceanic and Atmospheric Administration (NOAA) TOVS
Coverage: 1 January 1987–16 August 1987, global
Abstract: Emery, et al., gridded, 1-degree-latitude-by-1-degree-longitude, weekly, vertically integrated water-vapor corrections for Geosat altimetry

Data Set Volume: 120 MB
Smallest order: Entire data set.
References: Emery, W., G. Born, D. Baldwin, and C. Norris, "Satellite derived water-vapor corrections for Geosat altimetry," *Journal of Geophysical Research, Special Geosat Issue, Part 1*, 95, 1990, pp. 2953–2965.

Comments: None
Data/Media Format:

| | Media Type | | | | |
|---|---|---|---|---|---|
| **Media Format** | 9-Track | 8mm (8200) | 3480 | ISO-9660 CD-ROM | Electronic Transfer |
| VMS Backup | | | | | |
| ANSI labeled | | | | | |
| Unlabeled | X | X | X | | |
| UNIX Tar | | | | | |

## IV. SOFTWARE APPLICATIONS

### IMAGIC

IMAGIC is an image-processing software package for the Apple Macintosh II, written by Brian Powell, Charles Norris, and William Emery ( Colorado Center for Astrodynamics Research, Campus Box 431, University of Colorado, Boulder, Colorado 80309). IMAGIC is useful for working with any data that can be viewed as a two-dimensional image. Though written primarily to process satellite-derived imagery, IMAGIC can also be used for visualizing numerical data and for processing medical images. The current version of IMAGIC being distributed by the JPL PO.DAAC is 0.9d65.0.1. IMAGIC operates on any Apple Macintosh computer with a color monitor, including the Macintosh II, Macintosh IIx, Macintosh IIcx, and Macintosh IIci. The program requires that your Macintosh have System 6.0 or later. Two megabytes of RAM and a hard disk are also recommended. It is distributed on one 3.5-inch disk and has a user's guide.

### ATLAST

ATLAST is a world ocean atlas of hydrography, nutrients, and chemical tracers. This electronic atlas, developed by Professor Peter Rhines (School of Oceanography, University of Washington, Seattle, Washington), allows the scientist to examine and plot hydrographic and tracer section data on an IBM PC or compatible computer. Approximately 100 hydrographic sections are provided with the ATLAST package, which is distributed by PO.DAAC on five 3.5-inch, high-density diskettes with a user's guide. New sections may be imported into the ATLAST format by means of a utility provided with the package. The current version of ATLAST being distributed by the JPL PO.DAAC is 3.5. ATLAST requires an IBM-class microcomputer with CGA, EGA, or VGA graphics capabilities. An 80386-based IBM clone is ideal, and an IBM-AT class machine is adequate.

### OCEANATLAS

OceanAtlas is a microcomputer application that provides a graphic environment to examine and plot oceanographic section data. OceanAtlas 2.5, (released Feb '94), is an enhanced version of the original release, developed by John Osborne (NOAA/Pacific Marine Environmental Laboratory [PMEL], Seattle, Washington), Peter Rhines (University of Washington, Seattle, Washington), and James Swift (Scripps Institution of Oceanography, La Jolla, California). The program is a companion to the IBM-PC program ATLAST. OceanAtlas provides plotting capabilities with features such as data filtering and importing from spreadsheets. It also provides the capability to perform calculations such as geostrophic velocities. The OceanAtlas package is distributed on three 3.5-inch, high-density diskettes that include approximately 50 hydrographic sections. New sections may be imported into the OceanAtlas format by means of a utility provided with the package. OceanAtlas requires a Macintosh computer with a 68020 or 68030 microprocessor. It is optimized for System 7.x, but should run on System 6.0x. Although OceanAtlas will run in black and white, its full features are usable only with color monitors capable of displaying 256 colors. An SE30 with an auxiliary color monitor can be used, as can any of the Macintosh II family. A version 2.0 manual and a version 2.5 addendum is included.

## V. EDUCATIONAL MATERIAL

### EDUCATIONAL MATERIALS DOCUMENT

This 14 page brochure lists materials of interest to educators including: material designed specifically for educators; research data suitable for educators; conferences and workshops; newsletters; funding; and satellite data in the classroom. Most of the information pertains to Earth Science and Oceanographic study units.

## VI. PRODUCTS IN THE NEAR FUTURE

### Pathfinder AVHRR Sea Surface Temperature Products

These data products consist of global sea surface temperatures (SST) from January 1981-present as derived from the five-channel AVHRR instruments onboard the NOAA 7/9/11 polar orbiting satellites. These data products are improved over previously available satellite derived SST data sets in that the data have been produced using improved data processing including incorporation of new cloud detection algorithms applied at the University of Miami, inter-calibration among the satellites, and quality analysis procedures implemented through the AVHRR Oceans Pathfinder group at the Jet Propulsion Laboratory. In addition, the data are more complete because they are derived from the original AVHRR data rather than from a subset as provided by NOAA for operational purposes. The data will come in two different grids, equal-area and equal-angle. The equal-area grids are not suitable for displaying images since the number of meridional grid points varies from 4320 straddling the equator to 3 at the North and South poles. These grids at the present time can only be read using the Miami software package DSP with the possibility for future formatting in the Hierarchical Data Format (HDF). The equal-angle grids are suitable for creating images, and at the 9km resolution contain 4096 points in the meridional direction and 2048 points in the zonal direction. The 18km resolution grids contain 2048 points in the meridional direction and 1024 points in the zonal direction. These grids will be distributed in both HDF and raw binary format. The image size for the 9km grids is 25MB for three bands of data, the SST value, pixel-quality, and QA flag. For 730 pass files (ascending and descending) in one year the total data volume is 8760MB. The 18km grid image size is 8MB or 5840MB/year for the daily passes. Eight-day and 1 month means will be produced and distributed. The SST fields form a high quality data set suitable for global change studies. It is anticipated that full production of this data set will begin in July of 1994 with the data available through an anonymous FTP account, 4mm DAT tape or exabyte tape. In the future this data should be available through CD-ROMs. The data eventually will be available in two gridded products at a resolution of 9 and 18 kilometers. It is anticipated that the 9-km product will be available in August of 1994.

## VII INDEX